

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 10/689,736

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A route provision apparatus comprising:
a position acquisition unit configured to obtain current positioning data including information of a current position of a mobile object;
veering detecting unit configured to employ the current positioning data to detect a veering state in which of the mobile object has veered from a determined travel route,
wherein the determined travel route has a destination; and
a travel route determination unit configured to select a route determination condition from among a plurality of route determination conditions based on the veering state, and to determine a new travel route based on the selected route determination condition, when the veering detecting unit detects the veering of the mobile object,
~~wherein the travel route determination unit employs the detection result obtained by the veering detecting unit to determine a new travel route based on one or more of route determination conditions.~~
wherein the plurality of route determination conditions include:
a return route search condition for determining the new travel route from the current position to a specific point along the determined travel route;
a first revised route search condition for determining the new travel route from the current position to the destination; and

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a second revised route search condition for determining the new travel route from the current position to the destination.

2. (canceled).

3. (currently amended): A navigation system comprising:
a position acquisition unit configured to obtain current positioning data including information of a current position of a mobile object;
veering detecting unit configured to employ the current positioning data to detect a veering state in which of the mobile object has veered from a determined travel route,
wherein the determined travel route has a destination; and
a travel route determination unit configured to select a route determination condition from among a plurality of route determination conditions based on the veering state, and to determine a new travel route based on the selected route determination condition, when the veering detecting unit detects the veering of the mobile object,

~~wherein the travel route determination unit employs the detection result obtained by the veering detecting unit to determine a new travel route based on one or more of route determination conditions.~~

wherein the plurality of route determination conditions include:

a return route search condition for determining the new travel route from the current position to a specific point along the determined travel route;

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a first revised route search condition for determining the new travel route from the current position to the destination; and
a second revised route search condition for determining the new travel route from the current position to the destination.

4. (canceled).

5. (currently amended): A route provision method comprising:
obtaining current positioning data including information of a mobile object;
employing the current positioning data to detect a veering of the mobile object from a determined travel route; and
detecting a veering state in which the mobile object has veered away from the determined travel route;
selecting a route determination condition from among a plurality of route determination conditions when the veering of the mobile object from the determined travel route is detected based on the veering state, the plurality of route determination conditions including:
a return route search condition for determining a new travel route from the current position to a specific point along the determined travel route;
a first revised route search condition for determining the new travel route from the current position to the destination; and

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a second revised route search condition for determining the new travel route from the current position to the destination; and

determining a the new travel route based on the selected route determination condition, when the veering of the mobile object from the determined travel route is detected,

wherein in the determining of the new travel route, the detection result obtained at the detecting of the veering are employed to determine a new travel route based on one or more of route determination conditions.

6. (canceled).

7. (currently amended): A computer readable medium having a computer program product for causing a computer to execute procedures, comprising:

means for obtaining current positioning data including information of a mobile object;

means for employing the current positioning data to detect a veering state in which of the mobile object has veered from a determined travel route,

wherein the determined travel route has a destination; and

means for selecting a route determination condition from among a plurality of route determination conditions based on the veering state, and determining a new travel route based on the selected route determination condition, when the veering of the mobile object from the determined travel route is detected,

wherein the plurality of route determination conditions include:

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a return route search condition for determining the new travel route from the current position to a specific point along the determined travel route;
a first revised route search condition for determining the new travel route from the current position to the destination; and
a second revised route search condition for determining the new travel route from the current position to the destination, wherein the means for determining of the new travel route employs the detection result obtained at the detecting of the veering to determine a new travel route based on one or more of route determination conditions.

8. (canceled).

9. (currently amended): The computer readable medium program product as claimed in claim 7 further comprising means for displaying the determined travel route.

10. (new): The route provision apparatus as claimed in claim 1, wherein the first revised route search condition comprises a condition to reduce a numerical value for a linking cost for a road that is used for the determined travel route.

11. (new): The route provision apparatus as claimed in claim 1, wherein the first revised route search conditions comprises a condition to increase a numerical value for a linking cost for a road that is used for the determined travel route.

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12. (new): The route provision apparatus as claimed in claim 10, wherein the second revised route search conditions comprises a condition to increase a numerical value for a linking cost for a road that is used for the determined travel route.

13. (new): The route provision apparatus as claimed in claim 1, wherein the route determination unit selects the return route search condition as the route determination condition when the veering state is a state in which an approaching direction of the mobile object is within a predetermined angle with respect to a guiding direction set based on the determined travel route.

14. (new): The route provision apparatus as claimed in claim 1, wherein the route determination unit selects the return route search condition as the route determination condition when the veering state is a state in which the mobile object is located on a narrow road.

15. (new): The route provision apparatus as claimed in claim 1, wherein the route determination unit selects from between the first revised route determination condition and the second revised route determination condition based on a number of times the moving object has previously veered from a travel route before the moving object currently veered from the determined travel route.

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16. (new): A navigation apparatus, comprising:
a positioning circuit that outputs positioning data indicating a current position of a mobile object; and

a control circuit that determines when the mobile object veers from a previously determined route,

wherein, when a veering of the mobile object has a first characteristic, the control circuit determines a new travel route from the current position to a specific point along the previously determined route other than a destination of the previously determined route,

wherein, when the veering of the mobile object has a second characteristic, the control circuit determines the new travel route from the current position to the destination based on a first route determination condition; and

wherein, when the veering of the mobile object has a third characteristic, the control circuit determines the new travel route from the current position to the destination based on a second route determination condition.

17. (new): The navigation apparatus as claimed in claim 16, wherein the first route determination condition comprises a condition to reduce a linking cost for a road of the previously determined route.

18. (new): The navigation apparatus as claimed in claim 16, wherein the first route determination condition comprises a condition to increase a linking cost for a road of the previously determined route.

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19. (new): The navigation apparatus as claimed in claim 17, wherein the second route determination condition comprises a condition to increase a linking cost for the road of the previously determined route.

20. (new): The navigation apparatus as claimed in claim 16, wherein the second characteristic comprises an angle between a travel direction of the mobile object and a guiding direction corresponding to the previously determined route.

21. (new): The navigation apparatus as claimed in claim 16, wherein the first characteristic comprises the mobile body veering onto a narrow road.

22. (new): The navigation apparatus as claimed in claim 16, wherein the second characteristic corresponds to a number of times the moving object has previously veered before the moving object currently veered from the previously determined route.